



## Record Setting Warm March Across Iowa

by Jim Lee, General Forecaster

The unusual warmth experienced throughout Iowa for much of the last year culminated in a March that shattered temperature records across the entire state. It was the warmest March on record everywhere, with multiple high temperature and warm low temperature records broken at nearly all stations in Iowa. Below are some statistics for Des Moines, where temperature records go back to August of 1878.

The average temperature at Des Moines for the month of March was 55.7 degrees, besting the previous record, set way back in 1910, by 4.2 degrees. It was also an incredible 16.4 degrees above normal, making March of 2012 the farthest above normal of any month on record at Des Moines. March was so much warmer than normal that it would rank 11<sup>th</sup> on the list of the warmest Aprils on record.

The number of warm days in March was completely unprecedented in the climate record. Daily high temperature records were tied or broken on nine days and daily warm low temperature records on seven days. New records were established for the most consecutive March days above freezing (22), most days reaching 70 or higher (13), and most days reaching 80 or higher (7). The excessive warmth of the seven days from March 14-20 was historic, with the average temperature of 68.8 degrees being 24 degrees above normal for that week. In fact this was the warmest week ever recorded at Des Moines in the months of November through March.

### March Record Maximum Temperatures: Des Moines

Date	New Record	Old Record	Year
6 <sup>th</sup>	74*	74	2005
13 <sup>th</sup>	77*	77	2007
14 <sup>th</sup>	81	75	1977
15 <sup>th</sup>	81	77	2003
16 <sup>th</sup>	84	77	1930
17 <sup>th</sup>	83	81	1894
18 <sup>th</sup>	83	80	1918
19 <sup>th</sup>	81	80	1921
27 <sup>th</sup>	80*	80	1989, 1895

### March Record Maximum Temperatures: Waterloo

Date	New Record	Old Record	Year
10 <sup>th</sup>	67	66	1967
14 <sup>th</sup>	77	71	1995
15 <sup>th</sup>	79	73	1935
16 <sup>th</sup>	82	77	1930
17 <sup>th</sup>	82	78	2003
18 <sup>th</sup>	81	77	1918
19 <sup>th</sup>	80	78	1921

\*Denotes a tied record

Records fell similarly at Waterloo, where the March average temperature of 51.1 degrees broke the previous record (also set in 1910) by 4.3 degrees. Before this spring the earliest Waterloo had ever reached 80 degrees was March 21 (in 1907 and 1938), but in 2012 that mark was bested on four consecutive days with highs in the 80s from March 16-19. Also previous to this year there had never been a low temperature that remained in the 60s during March. However, last month Waterloo recorded lows of 62 degrees on March 18 and 61 de-

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## Editors

**Ken Podrazik**  
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**Cover photo and back photo courtesy of Kevin Skow**

## Record Setting Warm March Across Iowa

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grees on March 19. On March 18 the average temperature at Waterloo was 71.5 degrees, making it the warmest March day on record.

Similar to this April, it is not uncommon following a warm March where either frost, snow, or a hard freeze occurred during remainder of the spring. In fact, in 1910, when the previous warmest March on record occurred, April also started out unusually warm but then turned cold and backward, with multiple rounds of snow and hard freezes between April 15 and April 26. The magnitude and duration of freezing temperatures were unprecedented for so late in the season and significant damage was done to plants of all kinds. Those plants that managed to survive the cold and snow of April 15-18 were almost completely destroyed by the hard freezes of April 23-25, with over 90% of the fruit crop annihilated by the end of the month. Many stations reported that the blossoms and leaves on the trees were frozen black and that by the end of April the trees were shedding their leaves as if it were autumn. Even in far southeastern Iowa an observer at Keokuk wrote that "the forest trees, which were in full leaf, are wilted and the leaves are falling." The average last freeze and frost dates are not until late April for much of Iowa, so there remains additional chances of freezes and frosts.

Shown are tables listing the new or tied March temperature records for Des Moines and Waterloo.

### March Record High Minimum Temperature: Des Moines

Date	New Record	Old Record	Year
14 <sup>th</sup>	57	49	1945
16 <sup>th</sup>	58	48	2003, 1946
17 <sup>th</sup>	63	56	1894
18 <sup>th</sup>	62	58	1903
20 <sup>th</sup>	57	48	2011
21 <sup>st</sup>	59	56	1938
22 <sup>nd</sup>	51*	51	1935, 1910

### March Record High Minimum Temperatures: Waterloo

Date	New Record	Old Record	Year
12 <sup>th</sup>	47*	47	1990
14 <sup>th</sup>	50	47	1973
17 <sup>th</sup>	59	45	1966
19 <sup>th</sup>	61	59	1921
20 <sup>th</sup>	57	47	1921
21 <sup>st</sup>	59	50	1938
22 <sup>nd</sup>	54	45	1938
23 <sup>rd</sup>	50	49	1907

\*Denotes a tied record

## Hurricanes in Iowa? Part 2 of 3 by Aubry Bhattarai, General Forecaster

With Des Moines lying over 800 miles from the Gulf of Mexico, it seems unlikely that a hurricane would be able to impact the state. However, throughout history a few storms have persisted and tracked very near or across Iowa. This is the second part in a three part series about hurricanes which have impacted Iowa. Previously, we looked at the 1900 Galveston Storm.

### 1921 Hurricane One:

June 16 – June 26

Assigning names to hurricanes did not begin until 1953, so this hurricane does not have a name, but it was the first hurricane of the 1921 season. This storm was a Category 1 hurricane and made landfall in the U.S. near Bay City, TX (about 65 miles southwest of Houston) around June 22, 1921. In the overnight hours of June 21-22, 68 mph winds were reported at Corpus Christi, TX. Winds in Houston and Galveston reached 60 mph on June 22. Between 6am and 9am on June 22, Houston received 2.77 inches of rain. The system pushed north, quickly dissipating to a tropical depression near Dallas, TX. The system continued to push north out of Texas, and reached Iowa around June 26 as a tropical depression. Meteorological records indicate that while the center of the tropical

depression was identifiable, it was becoming indistinct. By June 27, the tropical cyclone had dissipated. Between June 25 and June 27, Des Moines received 0.82 inches of rain, while some stations in southern Iowa received well over one inch of rain.

It is worth noting that the hurricane re-analysis project undertaken by the Hurricane Research Division of NOAA's Atlantic Oceanographic & Meteorological Laboratory has recalculated the track of this hurricane. The new track (Figure 1) does not bring the storm into Iowa, but stops the system just south of Iowa in northern Missouri. However, even with the modified track, it is likely that the impacts of this system were felt in Iowa.

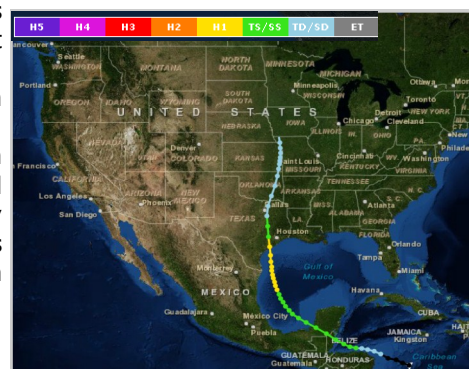


Figure 1: Reconstructed Track of the 1921 Hurricane.

## New Methods to Submit Storm Reports

by Brad Small, Senior Meteorologist

Although there have been great strides in severe weather research and technology over the past few decades, methods to report severe weather have remained essentially unchanged. National Weather Service (NWS) warning meteorologists have a much better understanding of conditions that are favorable for large hail, tornadoes and other severe weather phenomena, and advances in radar technology including higher resolution data have resulted in higher quality warnings. However, storm spotters have continued to rely mainly on voice communications to relay their reports, along with simple computer forms to send text information.

With the growing proliferation of smart phones, the Des Moines NWS office is hoping to capitalize on this technological surge and acquire pictures and video during severe weather events or shortly after their occurrence. Beginning this severe weather season the NWS in Des Moines will begin accepting spotter reports via email, text messages, Twitter and Facebook. All of these methods are encouraged and will allow the spotter to send near real-time pictures and/or video of cloud for-

mations, tornadoes, hail, wind damage and flooding in addition to their descriptive reports.

To send information via Twitter, please submit your report using the **#iawx** hashtag. Facebook users can reach us at <http://www.facebook.com/US.NationalWeatherService.DesMoines.gov> or by searching for "National Weather Service Des Moines." To report via text message, send your photo, video or message to (515) 240-5515. You can also email [dmx.spotterreport@noaa.gov](mailto:dmx.spotterreport@noaa.gov).



For additional information spotters can attend a spotter training course in their area or visit the Skywarn section of our webpage at <http://www.crh.noaa.gov/dmx/?n=skywarn>. The general public is welcome to submit severe weather reports via these methods as well.

## New Flood Stages and Flood Categories

by Jeff Zogg, Senior Hydrologist

After Iowa's historic 2008 flood, staff at NWS Des Moines began updating the flood impact statements which we include on our AHPS Web site (<http://water.weather.gov/ahps2/index.php?wfo=dmx>), as well as in our river Flood Warnings and Flood Statements. We solicited input from

federal, state and local government officials as well as private industry and the public. In February 2012 we published those updated flood impact statements for our river forecast points—locations for which we issue river flood forecasts, warnings and statements—on our AHPS Web site.

When we updated the flood impact statements, we noticed that many of the flood stages defined for our river forecast points were apparently set

too low. In other words, at most of our river forecast points, conditions meeting NWS "Flood Stage" criteria were no longer being met. For most locations, we noticed conditions meeting the NWS "Flood Stage" criteria are now being met at higher stages than those presently defined. We also noticed that conditions meeting NWS criteria for Moderate and Major Flood Stage are also being met at higher stages than those presently defined. See figure 1 for the NWS definitions and an example of Flood Stage, Moderate Flooding and Major Flooding.

In response, for each of our 47 river forecast points, we evaluated the defined levels for NWS Flood Stage, Moderate Flood Stage and Major Flood Stage. In evaluating each location, we used a combination of flood impact statements, statistical analysis of past flood crests and NWS Des Moines staff experience.

Our analysis confirmed that many of the levels defined for Flood Stage, Moderate Flood Stage and Major Flood Stage were indeed set too low. We developed a list of proposed new levels for these thresholds and solicited feedback from many different people,

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**Flood Stage** - minimal or no property damage, but possibly some public threat. Flood Stage is not necessarily the same level as bankfull—it is typically at least a few feet above it.

**Moderate Flooding** - some inundation of structures and roads near stream. Some evacuations of people and/or transfer of property to higher elevations.

**Major Flooding** - extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.

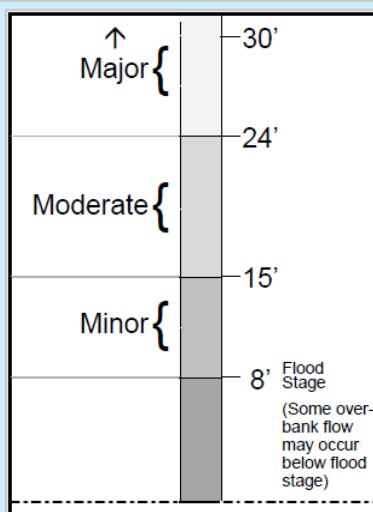


Figure 1: Definitions and an example of Flood Stage, Minor Flooding and Major Flooding. Note that the actual values will vary by location.



## New Flood Stages and Flood Categories

(Continued from page 3)

including the U.S. Army Corps of Engineers, Iowa Homeland Security, county emergency managers, local community officials and the public. Based on feedback we received, we developed a final list of the new values, which became official on March 14, 2012.

The changes were significant. The values for Flood Stage, Moderate Flood Stage and Major Flood Stage changed at 44 of our 47 river forecast points. The new Flood Stage is now several feet higher at several locations. It increased by seven feet at three locations, and changed by at least three feet at 12 locations. With the new values for Flood Stage, WFO Des Moines will issue 53% less river Flood Warnings than before. The number of Flood Warnings that forecast moderate flooding will decrease by 64%. The number of Flood Warnings calling for major flooding will decrease by 56%.

Refer to the NWS Des Moines' website for a list of the new values for Flood Stage, Moderate Flood Stage and Major Flood Stage. Look for the related news story in the news section at the top of our main website (<http://www.weather.gov/desmoines>).

Changes in development along and near rivers means that flood impacts and flood severity for the same river stage may change over time. Thus, documentation and evaluation of flood impact statements, as well as the Flood Stage, Moderate Flood Stage and Major Flood Stage will be an ongoing responsibility of NWS Des Moines. We would appreciate your help in this regard. Let us know whenever you notice that our flood impact statements do not reflect reality, or when our impact statements do not include noteworthy impacts. Thank you for helping NWS Des Moines provide the best possible flood warning and forecast services to the people of Iowa.

## Tom Reis (NØVPR) Recognized at NWS Des Moines

by Brenda Brock, Meteorologist in Charge

Nationwide, amateur radio operators practice their volunteer service, provide equipment and attend severe weather spotter training. The Mid-Iowa Skywarn Association, Des Moines Radio Amateurs' Association members, annually host severe weather spotter training classes and actively contribute to the NWS mission of protection of lives and property. During severe weather, Skywarn Coordinator Tom Reis, NØVPR, dedicates many hours at the NWS to make HF and VHF/UHF radio contacts with mobile field operators.

These reports provide critical details that are included in weather statements and warnings. A special recognition was held at the NWS - Des Moines on February 7; NWS employees surprised Tom, and wife Heather, with an appreciation celebration to honor his contributions.



Heather and Tom Reis at WFO Des Moines.

## Join NWS Des Moines on Facebook

by Ken Podrazik, General Forecaster

The National Weather Service in Des Moines has entered the social media network craze by joining Facebook. The NWS Des Moines plans to use Facebook to connect with potential users that they might not have been able to connect with using other means. You can find the NWS Des Moines Facebook page at <https://www.facebook.com/US.NationalWeatherService.DesMoines.gov>.



On our page you will find photos of outreach events, our office and equipment and even a Photo of the Day feature. A picture is posted to the Photo of the Day album if something meteorologically interesting has occurred. In addition, items of interest are posted on the page, such as the Weather Story, upcoming spotter training classes and times and interesting climate facts.

In the spring and summer months, users will be able to post photos of, or comment about, severe weather phenomena or severe weather damage.

During the winter time, Facebook followers of the NWS Des Moines can post pictures of snow and ice accumulation on our wall. We also encourage users to post any reports of snowfall amounts and/or ice accumulations they may have received at their homes, or any other winter weather such as visibility during blizzard conditions.

In the future, the NWS Des Moines will create a Twitter account and spotters, EMs, and other weather enthusiasts can post storm reports, pictures, and other questions and comments.

## The Next Generation of Meteorologists *By Mindy Beerends, General Forecaster*

Many government offices offer unpaid training opportunities for college students related to a participant's academic field of study, including the National Weather Service. College students in meteorology have a few different options to gain experience in their field of study including internships at local television stations, job shadow programs, scientific research opportunities and obtaining a volunteer position at a local NWS office. The student volunteer program provides the students with an opportunity to explore their career options, learn about the NWS, and develop both professional and personal skills.

A typical volunteership at the NWS in Des Moines follows a structured outline to introduce the student to warning and forecast operations, hydrology and data acquisition, and provides the student an opportunity to try their hand at short-term, long-term and aviation forecasting. Usually the student "works" at the forecast office for around 4 hours, one day per week throughout the course of a semester. Some of the students earn an independent study credit through an agreement between the NWS and their university.

The students gain hands-on experience in a number of NWS operation areas. These include learning procedures for the production of forecast graphics for a short-term or long-term gridded forecast and writing draft sets of aviation forecasts for five airports across central Iowa including cloud base heights, wind speed and direction, precipitation types, and visibility. The students perform two computer simulations using the Weather Event Simulator computer which gives the students a chance to be a radar warning meteorologist during a severe weather event and forecasting precipitation type and amounts for a winter storm.

Volunteers are also introduced to the operational hydrology program at the office. The students learn how to operate computer software to monitor river levels and issue river forecasts and river flood warnings. Another simulation helps the students prepare to be a hydrology warning operator during an extreme heavy rain event in which they learn how to issue flash flood warnings and statements.

Overall, the students gain valuable work experience while learning all facets of NWS operations and procedures to help open the door to

NWS and meteorological employment opportunities upon graduation from college.

There are also a few other programs that help students prepare for a career in meteorology through the NWS. One program is the Student Career Experience Program, which is a paid opportunity to work for the NWS as a college student that includes transitioning to a full-time NWS Meteorological Intern position upon graduation from college.

This program is currently under transition to the new "Pathways" program that has been introduced by President Obama. Another opportunity for anyone interested in becoming a meteorologist, including junior and senior high students, is the job shadow program. This program offers an opportunity for a student to shadow an operational meteorologist at the NWS in Des Moines for 4 to 8 hours to get a brief overview of NWS operations. Ways to become a meteorologist including types of schooling, degrees and classes, and other meteorology careers are also discussed with the student to help him or her decide if a career in meteorology is in his or her future. For more information about these opportunities, please email: [melinda.beerends@noaa.gov](mailto:melinda.beerends@noaa.gov).

## 2012 Cooperative Observer Length of Service Awards

*by Brad Fillbach, Hydro-Meteorological Technician/Cooperative Program Manager*



John Podgorniak (left) of Northwood, Iowa receives his 15 year Length of Service award from Brad Fillbach (right), HMT, WFO Des Moines.



Steve Watts (center) of Sac City, Iowa receives his 25 year Length of Service award from Jeff Zogg (left), Hydrologist, WFO Des Moines and Frank Boksa (right), Forecaster, WFO Des Moines.



## Climatological Data for December 2011 through March 2012

Location	Month	Average Temp	Departure	Highest	Lowest	Rain / Snow	Departure
Des Moines	Dec	32.9°F	+6.9°F	60°F (31 <sup>st</sup> )	4°F (10 <sup>th</sup> )	2.53" / 2.0"	+1.09" / -6.7"
	Jan	30.5°F	+7.9°F	65°F (30 <sup>th</sup> )	1°F (18 <sup>th</sup> )	0.42" / 4.4"	-0.60" / -3.8"
	Feb	32.5°F	+5.1°F	60°F (1 <sup>st</sup> )	3°F (11 <sup>th</sup> )	1.77" / 10.5"	+0.51" / +2.2"
	Mar	55.7°F	+16.4°F	84°F (16 <sup>th</sup> )	19°F (5 <sup>th</sup> )	1.73" / 0.3"	-0.54" / -4.5"
Mason City	Dec	26.1°F	+6.5°F	51°F (18 <sup>th</sup> )	-5°F (9 <sup>th</sup> )	1.25" / 5.4"	-0.01" / M
	Jan	22.8°F	+6.9°F	57°F (5 <sup>th</sup> )	-17°F (21 <sup>st</sup> )	0.90" / 10.0"	+0.08" / M
	Feb	27.8°F	+7.1°F	47°F (2 <sup>nd</sup> )	0°F (11 <sup>th</sup> )	1.17" / 2.4"	+0.17" / M
	Mar	48.9°F	+15.9°F	81°F (17 <sup>th</sup> , 18 <sup>th</sup> )	10°F (4 <sup>th</sup> )	2.41" / 1.0"	+0.18" / M
Waterloo	Dec	29.6°F	+7.4°F	52°F (18 <sup>th</sup> )	4°F (10 <sup>th</sup> )	2.38" / 1.1"	+1.18" / -8.2"
	Jan	24.0°F	+5.5°F	59°F (5 <sup>th</sup> )	-17°F (21 <sup>st</sup> )	1.39" / 14.7"	+0.59" / +6.5"
	Feb	29.1°F	+5.7°F	48°F (26 <sup>th</sup> , 29 <sup>th</sup> )	3°F (11 <sup>th</sup> )	1.08" / 7.4"	+0.09" / +0.2"
	Mar	51.1°F	+15.3°F	82°F (16 <sup>th</sup> , 17 <sup>th</sup> )	4°F (5 <sup>th</sup> )	1.27" / 1.1"	-0.79" / -3.2"
Ottumwa	Dec	32.9°F	+6.9°F	57°F (14 <sup>th</sup> , 31 <sup>st</sup> )	1°F (10 <sup>th</sup> )	2.63" / M	+1.26" / M
	Jan	29.5°F	+7.0°F	65°F (5 <sup>th</sup> , 30 <sup>th</sup> )	0°F (18 <sup>th</sup> )	0.25" / M	-0.65" / M
	Feb	32.3°F	+5.2°F	57°F (26 <sup>th</sup> )	6°F (11 <sup>th</sup> )	1.73" / M	+0.45" / M
	Mar	53.5°F	+14.7°F	82°F (16 <sup>th</sup> , 17 <sup>th</sup> )	10°F (5 <sup>th</sup> )	2.30" / M	+0.06" / M

## Severe Weather Word Search

J T T  
 Y P L U L K L W I  
 T P V L U K M I C N V N D  
 J R X P E W A L L C L O U D H W R  
 Y R H J C S D O G A N X R H P A P T X  
 A V K C R T W B I S H E L F C L O U D L S  
 C Z O E G S O Q K M K T O R N A D O I J D  
 W R T P X L Z F L A S H F L O O D C A F Y X R  
 V P U S T B E L U Z R M M S L I G H T N I N G  
 L Q S E S R H J T P G U S T F R O N T I J R K I I  
 A A E V Q E B Q Y G A O Y P U T X I Y V K N I T I  
 J D R C U M U L O N I M B U S H E L T E R S V S X  
 K S E R E A E S B W R A I N G K N F T L Z Q S M N C M  
 V V R P M L H R Q H K N J N V N A B F Y M F W T S D A  
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 S C A I L A R A H R F D V L D O W N B U R S T W J  
 Y H H W I T D Q Q Y E G C C P H E D L U Y U T A I  
 G O Y G N S O V L I R Z W A T C H K B C B P A D O  
 L A F E X W W Y O H R A I N F O O T O J D Q C  
 X K M Y X N A W Q I L L L P L R R B E E R M B  
 Y T Z V D R U O P Q N B A C D F L E Q A L  
 M J P B R N E N O F I P I H H Z V M M F J  
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CUMULONIMBUS  
 DERECHO  
 DOWNBURST  
 DOWNDRAFT  
 EXTREMEHEAT  
 FLASHFLOOD  
 GUSTFRONT  
 HAIL  
 LIGHTNING  
 MICROBURST  
 RAIN  
 RAINFOOT  
 SHELF CLOUD  
 SHELTER  
 SPOTTER  
 SQUALL LINE  
 SUPERCELL  
 TORNADO  
 UPDRAFT  
 VIRGA  
 WALL CLOUD  
 WARNING  
 WATCH



# Iowa Statewide Averages and Rankings for Temperature and Precipitation

by Craig Cogil, Senior Meteorologist

Month	Temperature	Departure from Normal	Rainfall	Departure from Normal	Temperature Ranking	Precipitation Ranking
December 2011	29.8°F	+6.9°F	2.17"	+0.80"	19 <sup>th</sup> Warmest	13 <sup>th</sup> Wettest
January 2012	26.0°F	+6.6°F	0.63"	-0.29"	17 <sup>th</sup> Warmest	34 <sup>th</sup> Driest
February 2012	28.9°F	+4.9°F	1.74"	+0.69"	23 <sup>rd</sup> Warmest	17 <sup>th</sup> Wettest
<b>Winter 2011-2012</b>	<b>28.2°F</b>	<b>+6.6°F</b>	<b>4.51"</b>	<b>+1.17</b>	<b>9<sup>th</sup> Warmest</b>	<b>20<sup>th</sup> Wettest</b>

Rankings are based upon 139 years of records. The January and February numbers cover the past 140 years. All values are preliminary.

## Temperatures:

Temperatures during meteorological winter (Dec-Feb) were quite mild across the entire state (figure 1). Readings ended up over 6 degrees above normal across Iowa with sustained warmth for much of the winter. This ranked as the 9<sup>th</sup> warmest winter in the past 139 years of record and was followed up by a historically warm March. This winter will certainly go down as one of the warmest in recent memory, especially after the cold and snowy winters of the past four years.

## Precipitation:

Precipitation amounts were above normal across the entire state during the winter months (figure 2). Amounts were above normal in both December and February with much of the precipitation falling as rain with the persistent warm conditions. Snowfall was severely curtailed over the state during the course of the winter also as a byproduct of the warm temperatures. Drought conditions in northwest Iowa persisted as much of the precipitation fell at times when the ground was frozen, denying any recharge of the soil.

## Snowfall:

The average snowfall across the state was 16.1 inches. This was 6.8 inches below normal, and the 28<sup>th</sup> lowest snowfall total among 125 years of snowfall records across the state. This winter has been a huge contrast to recent ones in Iowa as it was preceded by five consecutive snowier than normal winters and four consecutive colder than usual ones.

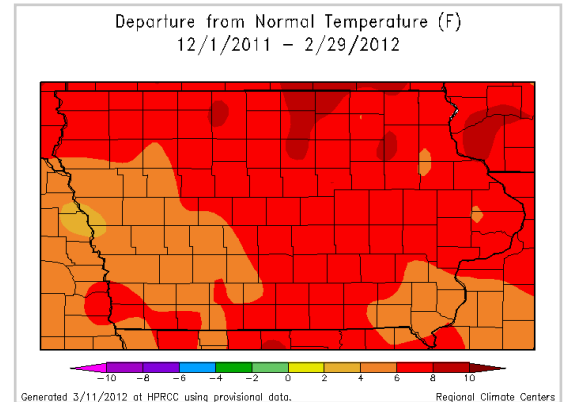


Figure 1: Departure from normal temperatures.

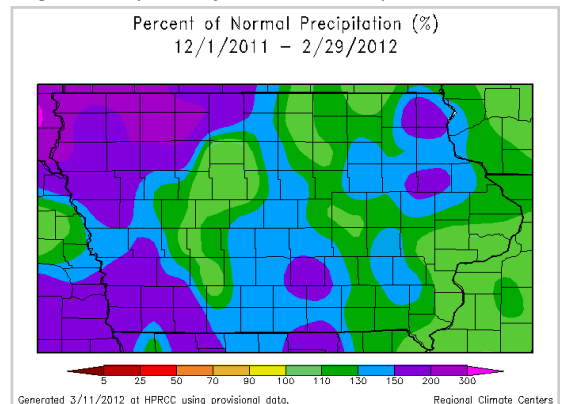


Figure 2: Departure from normal precipitation.

## Cooperative Observer Equipment Upgrade

by Aubry Bhattarai, General Forecaster



New electronics portion of Fisher & Porter gauges.

Most of the cooperative observers who use the Fisher & Porter rain gauge will see their equipment upgraded. These gauges have been used since the early 1960s, and rely on mechanical motors and gears to register accumulated rain. This data is physically punched into a paper strip by a mechanical punch, and the paper is mailed to the National Weather Service office each month. The upgrade will replace the mechanical parts, which are susceptible to failure, with electronics. Rainfall will now be measured and logged electronically. Instead of a paper tape, the data will be stored on a flash drive which the observer can mail or email to the office each month. The new gauges will be less likely to break, resulting in saved costs of repairs, and more consistent data. In addition, the electronic measurement will be more precise. Of the 30 Fisher & Porter gauges in Des Moines' cooperative observer program, 22 will be upgraded. Upgrades will begin this spring, and will be finished by summer.

## Spotter Training—2012 By Jeff Johnson, Warning Coordination Meteorologist

Each year, National Weather Service (NWS) Des Moines' meteorologists travel to most of the 51 counties we serve to provide a comprehensive multi-media spotter training presentation. The course contains information about severe weather climatology, severe thunderstorm types, different severe weather threats and how to identify them, how to report severe weather, spotter safety and severe weather communications. Spotter training classes last almost two hours, are open to the public and are free of charge.

Spotter training classes are hosted by emergency management officials, fire departments and a few amateur radio clubs. Most classes are scheduled by the county emergency management coordinator in cooperation with the National Weather Service. The training schedule is constantly updated so check back often if your county is not scheduled. Keep in mind that some counties only offer spotter training every other

year. If training is not offered in your county, you may attend a class in a nearby county. You can find a listing of classes on our [web page at www.weather.gov/desmoines](http://www.weather.gov/desmoines).

Spotter training will not be conducted this year in Kosuth, Calhoun, Grundy, Marion and Wayne Counties. Please visit an adjacent county if you wish to receive training. This year, WFO Des Moines has 44 spotter training classes scheduled.



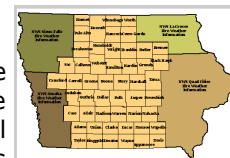
February 28, 2012 Spotter Training class in Des Moines, Iowa.



February 22, 2012 Spotter Training class in New Market, Iowa.

## New Fire Weather Products for Iowa by Frank Boksa, General Forecaster

The Fire Weather program for Des Moines and for the state of Iowa has had a complete makeover this year. To start with, the state of Iowa now has an Annual Operating Plan. This plan unifies all the products and services that the five National Weather Service Offices which serve Iowa will produce. This will lead to a more consistent, and less confusing, tool for decision makers in the state. The frequency of fire planning forecasts will also increase and a better method for verification of Spot Fire Forecasts will be put in place for our partners that do prescribed burns in Iowa.



The largest change that will take place is the introduction of the Red Flag Warning product for all National Weather Service Offices that forecast for Iowa. The Red Flag Warning will be issued when fuels (grasses, crop stubble, etc.) will be sufficiently dry to pose a fire danger, and coupled with wind speeds that are expected to be greater than 25 mph and relative humidity that is forecast to be less than 25 percent. This product will have a web presence on our homepage so the public will know when dangerous fire conditions exist across Iowa. The public and agencies that conduct prescribed burns can now use this information to safely plan, or cancel burns.

The Iowa Fire Weather Annual Operating Plan itself will be made available on the Fire Weather page of the NWS website along with a whole host of planning tools and information. We would like to encourage everyone to take a look at the enhancements that we have made to the fire weather program across the state by visiting our website at: [www.crh.noaa.gov/dmx/firewx.php](http://www.crh.noaa.gov/dmx/firewx.php).

## Weather-Ready Nation By Jeff Johnson, Warning Coordination Meteorologist

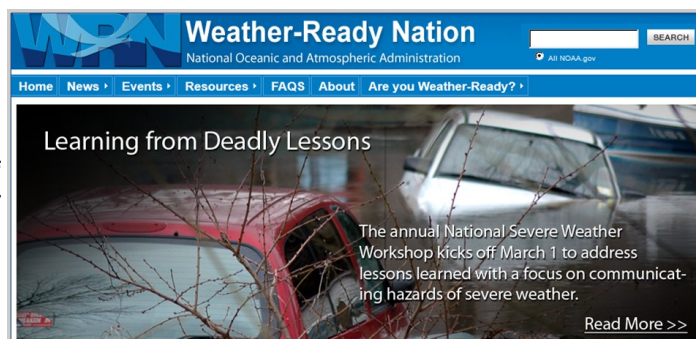
In recent years, the United States has had numerous significant weather events ranging from Hurricane Katrina in 2005 to the deadly tornado outbreaks of 2011. Closer to home, Iowa has had its share of significant natural disasters ranging from extreme winter weather, the floods of 2008 and the Missouri River Flood of 2011, to severe weather disaster such as the Parkersburg EF5 tornado in 2008 and the eastern Iowa derecho in July, 2011.

To help mitigate the impacts from natural disasters, the National Weather Service is transforming its operations to help America and Iowa respond through an initiative called "Weather-Ready Nation." Weather-Ready Nation is about building community resilience in the face of increasing vulnerability to extreme weather and water events.

The National Weather Service has launched several community-based projects across the county. Although

none of the pilot projects are in Iowa, best practices learned during the pilot projects will ultimately help the National Weather Service in Iowa improve its ability to serve Iowa.

For more information about Weather-Ready Nation, visit it's website on the Internet at: [nws.noaa.gov/com/weatherreadynation/](http://nws.noaa.gov/com/weatherreadynation/).





## Employee Spotlight

Brad Fillbach, Hydro-Meteorological Technician/Cooperative Program Manager

I'm Brad Fillbach and I'm the Cooperative Program Manager (CPM) with the National Weather Service office in Johnston. I've been with the NWS for 21 years, all of which have been spent here in Des Moines. I've been the CPM for the last 14 years. I manage a network of Cooperative Weather Observers across the state in our county warning area. I install weather equipment at a volunteer's home or business and in return, they provide us with daily temperatures, rainfall and snowfall data.

I was born and raised in Omaha, Nebraska. My interest in weather began in 1975 when an F4 tornado ripped through Omaha and missed my home by less than a mile. I remember standing out in the driveway with my dad and I was amazed at how dark the sky was and how still the air was.

After attending the University of Nebraska at Omaha for college, I joined the US Navy in 1984. I was an Aerographers Mate. My first duty station was at Fleet Numerical



Oceanography Center in Monterey, CA. My job there was as a Special Intelligence Communication operator. I also assisted forecasters with providing computer generated weather

charts to the fleet. After two years there, I transferred to San Diego, CA and reported to the aircraft carrier, USS Constellation CV-64. I spent four years on the ship and did two six month deployments to the Pacific and Indian Oceans and was able to see many countries overseas. While aboard the ship, our carrier battle group was the first to provide air support to oil tankers while entering and leaving the Strait of Hormuz during the Persian Gulf War. My main job responsibilities on the ship were to launch bathythermographs which were used for anti-submarine warfare briefings, run the SMQ-10 Weather/Environmental satellite, provide fighter pilots with aviation forecast/briefings, and take weather observations. I transferred off the ship in 1990 and reported to Naval Oceanography Command Facility (NOCF) in San Diego, CA. After one year at NOCF, I was offered a job with the Des Moines NWS.

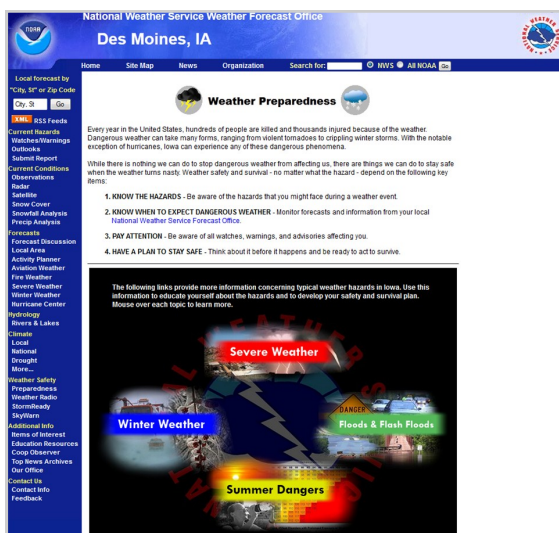
Some of my interests include golf, volleyball and the Nebraska Cornhuskers.

*We want your feedback! We want to hear about your favorite stories and features, or if there is something you would like to see in an upcoming issue, let us know! Contact the editors at:*

[Kenneth.Podrazik@noaa.gov](mailto:Kenneth.Podrazik@noaa.gov) or [Aubry.Bhattarai@noaa.gov](mailto:Aubry.Bhattarai@noaa.gov).

## New Weather Preparedness Webpages for Des Moines

By Aubry Bhattarai, General Forecaster



Each year, Iowa sees many types of severe and hazardous weather, including tornadoes and winter storms. Do you know what to do to stay safe? Do you know what products the National Weather Service issues to keep you informed about hazardous weather? The National Weather Service in Des Moines is pleased to announce new and improved preparedness webpages to help you find out! The new weather preparedness pages have information tailored to Iowa. You will find information on all hazards experienced in Iowa: winter weather, summer heat, floods and flash floods and of course severe thunderstorm hazards such as tornadoes and lightning. Information on these hazards is also available in Spanish. Included is information on understanding the National Weather Service's products, including what conditions must be met and what actions you should take. Check out the new webpages at: [www.weather.gov/dmx/?n=preparedness](http://www.weather.gov/dmx/?n=preparedness). You can also find information about becoming a storm spotter and requesting an office tour or outreach event.

## Outlook for Spring into Summer 2012

by Miles Schumacher, Senior Meteorologist

The winter of 2011-2012 was one of the top five warmest winters in Iowa weather history with all three of the winter months averaging well above normal. It is unusual for a second year La Niña winter, as the winter of 2011-12 was, to be warmer than normal throughout. Part of this may be attributed to the positioning of the warm pool of water in the central Pacific. Its position farther east than normal, likely contributed to a stronger jet stream across the Pacific through the winter. The very strong jet stream limited the ability of Arctic air from Siberia and northwest Canada to penetrate southeast into the central U.S.

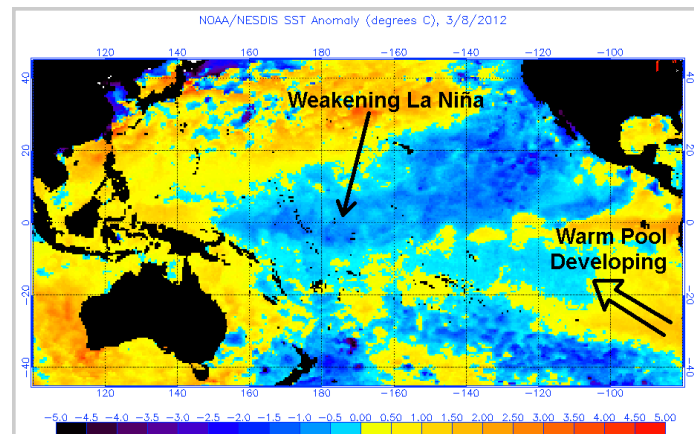


Figure 1: Sea surface temperature departure from normal, equatorial Pacific.

The La Niña pattern weakened considerably by the end of the meteorological winter season, December through February. Conditions had returned to near normal by mid March. Though the La Niña has nearly completely dissipated, there is a lag time in atmospheric response. It is not uncommon for the lag to be two to three months. The change is likely to continue into the summer with most models indicating either neutral conditions to a weak El Niño state. The current temperature departures for the equatorial Pacific are shown in figure 1. Note the breakdown of the "horseshoe" pattern of warm water around the cooler water of the weakening La Niña as well as the warm pool of water developing off of the South American coast that is pushing northwest.

The atmosphere typically follows a three to seven year cycle between El Niño and La Niña. Depending on the phase of the Pacific Decadal Oscillation (PDO), El Niño/La Niña is favored during warm/cold phase of the PDO. The Pacific is currently in the cold phase of PDO. La Niña conditions are favored by a two to one margin during the cold phase. El Niño events that occur during the cold phase tend to be weak. Model forecast suggest we will move toward a weak El Niño during the upcoming Boreal winter. Figure 2 below shows the observed central Pacific Sea Surface Temperature departure (solid black line) and a series of forecasts (blue for recent, red for previous, and other

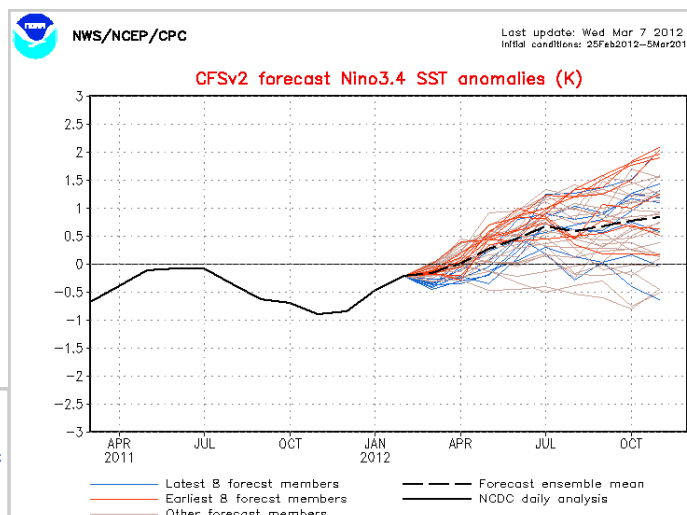


Figure 2: Sea surface temperature departure for the past year and projection into the Fall of 2012. Departure in degrees K is shown on the ordinate, with time on the abscissa.

model members in mauve). The forecast mean is depicted going forward as a dashed black line. It is based on the initial conditions from 7 March 2012. As can be seen from the figure 2, there is a significant spread in the forecasts moving into the late summer and fall months, however most model members are forecasting warm conditions of a weak El Niño. It should be noted that this forecast is based on one model only. This model is consistent with, and therefore representative of, other modeling.

Although in meteorology no two years are the same strictly speaking, one can look at weather patterns of the recent past to give some indications of near term weather trends in the future. This forecast is based in large part on the best fit from several of the years that were similar to the winter season into the early spring pattern so far. Considerations were also made for the state of the Pacific and expected El Niño and other factors that influence our weather pattern.

For the months of April and May, the atmosphere will likely remain weakly influenced by the La Niña of the past winter. The warm signal of the winter will trend toward a more typical pattern for La Niña spring seasons. Indications are the extended period of warm weather in Iowa will reverse to become cooler than normal for the balance of the spring. There are indications that precipitation will fall short of normal for the months of April and May as well. Major dryness is not expected, however soil moisture conditions are drier than normal already over northwest Iowa making rainfall more critical. See figures 3 and 4.

With the state of the Pacific moving toward El Niño during the spring, the atmosphere will most likely begin to respond during the summer. Typically that

(Continued on page 11)

## Outlook

(Continued from page 10)

would result in cooler and wetter conditions than would be expected if the La Niña continued again this summer. There are several factors that will affect the summer weather. One important factor is the drought conditions in the south central U.S. There has been some improvement in the drought conditions, which is a favorable sign for rainfall in Iowa this summer and thus cooler temperatures. For that reason, there is a fairly wide spread, statistically, in the forecast for the upcoming summer. The forecast below is a composite of several years and the most favored outcome. Overall, it appears the summer will average a little warmer than normal, but likely cooler than last summer. Rainfall is most likely to be a little below normal. It does not appear there is a strong likelihood of significant drought this summer, but timely rainfall will be more critical than normal since the growing season will begin on the dry side. See figure 4 for details.

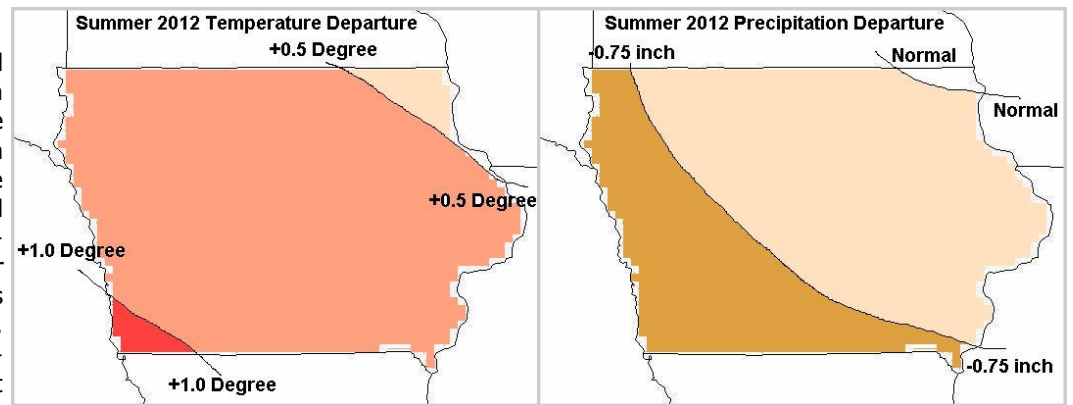


Figure 3: Mean Temperature (left), precipitation (right) departure for April through May.

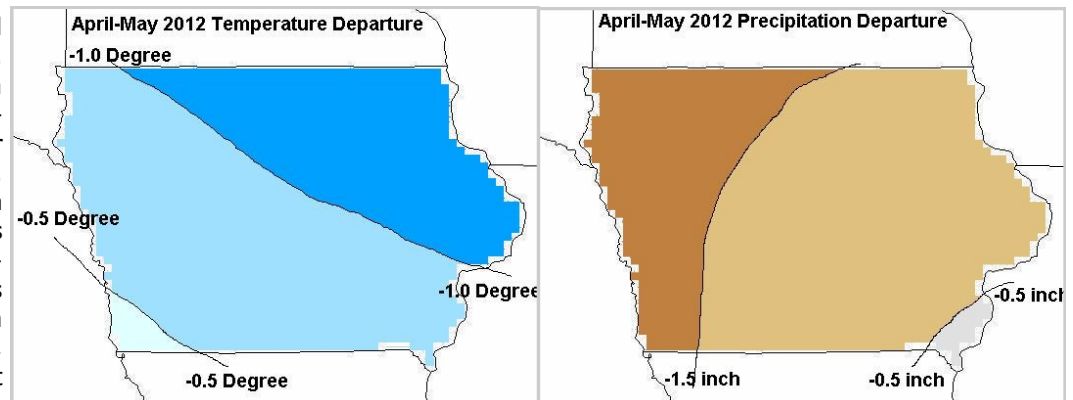
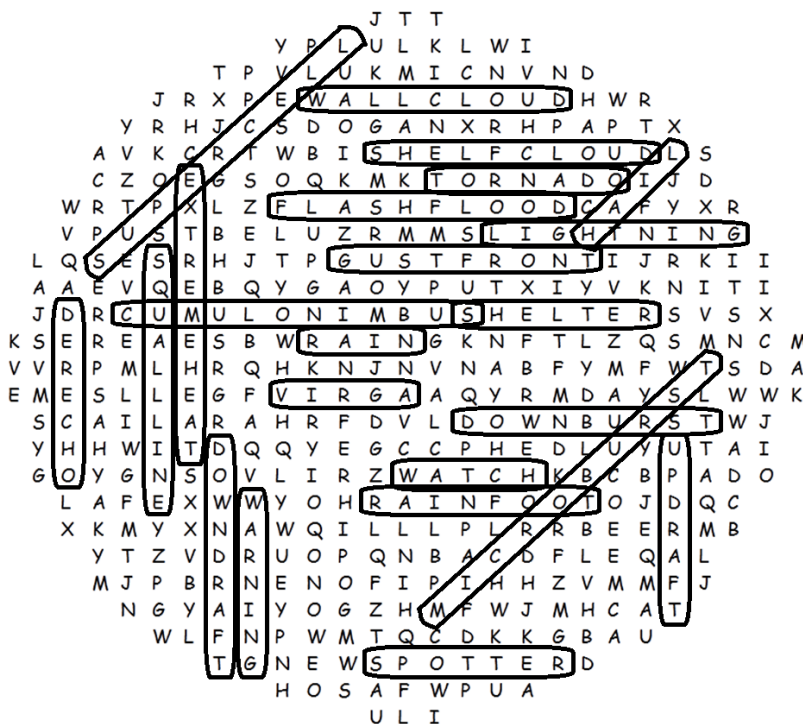


Figure 4: Mean Temperature (left), precipitation (right) departure forecast for the Summer of 2012.

## Word Search Solution



### Fun Fact:

**April 20, 1992:** Heavy snow fell across portions of far western Iowa during the afternoon and evening hours, with unseasonably cold temperatures and increasing winds combining to produce wind chills below zero in some areas. Reported snowfall amounts included 6.0 inches at Logan and Oakland, 7.0 inches at Clarinda, 8.0 inches at Castana, 9.3 inches at Red Oak, and 12.0 inches at Sidney which surpassed their total snowfall for the rest of the 1991-1992 season (10.3 inches). The 12.0 inch total at Sidney also tied the incredible storm of April 20, 1918 for the latest date of the spring on which a foot or more of snowfall has been recorded in Iowa.

For more Fun Facts:

<http://www.crh.noaa.gov/dmx/WxHistory.php>





# THE WEATHER WHISPER

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